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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/731,187

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Sivarama K. Kuchibhotla

A305

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01/25/2006

Carl C. Kling
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EXAMINER

NGUYEN, HUNG

ART UNIT

PAPER NUMBER

2851

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/731,187

Applicant(s)

KUCHIBHOTLA ET AL.

Examiner

Hung Henry V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 14-18 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-9, 12, 13 and 19 is/are allowed.
- 6) ☒ Claim(s) 1, 10, 11, 20 and 24 is/are rejected.
- 7) ☒ Claim(s) 2 and 21-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Non-responsive-inadvertent Amendment

1. The reply filed on November 10, 2005 is not fully responsive to the prior Office Action because of the following matter(s): claims 10 and 11 have not been amended correctly. The amendment to the claims does not comply with the requirements of 37 CFR 1.121(c) because claims 10 and 11 must be amended by rewriting the entire claim with all changes (e.g., additions and deletions). In order to expedite the prosecution, the (amended) claims are being interpreted in view of the specification and the remarks filed October 17, 2005.

Claim Objections

2. Claims 10 and 11 are objected to because of they are identical and they do not comply with amendment requirement as mentioned above. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 10 and 11 (as amended) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 10 and 11 are vague and indefinite since they are single means claims, i.e. where a means recitation does not appear in combination with another recited element of means, is

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subject to an undue breadth rejection under 35 U.S.C. 112, first paragraph. *In re Hyatt*, 708 F.2d 712, 714-715 (218 USPQ 195), 197 (Fed. Cir. 1983). (A single means claim which covered every conceivable means for achieving the stated purpose was held nonenabling for the scope of the claim because the specification disclosed at most only those means known to the inventor.). See MPEP 2164.08(a).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Murayama et al (U.S. Pat. 5,757,552).

With respect to claim 24, Murayama et al (figure 1) discloses a corrective lens group (C) which can be regarded as zero power lens group having back to back complementary lens elements (meniscus lenses M1, M2) serving as a zero-power optical device (see col.4, lines 33-34; col.6, lines 25-27), at a position with respect to the optical axis in the optical system to transmit collimated and uncollimated beams without deviation and without shift from the line of propagation.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Klosner et al (U.S.Pat. 6,416,908) in view of Murayama et al (U.S.Pat. 5,757,552) and further in view of Moskovich (U.S.Pat. 5,200,861).

As to claim 1, Klosner discloses a projection lithographic system for curved surface lithography having a number of required transmissive elements in a light path controlled by projection optics and illumination optics (see figure 1). Klosner lacks to show an illumination compensator having zero power aggregate optical effect of two closely-spaced identical meniscus elements back to back. Murayama teaches an illumination compensator (C) having zero power optical effect of two closely spaced meniscus elements back to back but does not expressly disclose the two meniscus lens elements being identical. Moskovich teaches a lens system comprising two meniscus lenses for correcting aberration and the field curvature. Moskovich suggests that the two meniscus elements are identical for reducing the cost of the lens system (see col.3, lines 32-39). In view of such teachings, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teachings of Klosner, Murayama and Moskovich to obtain the invention as specified in claim 1 of the present

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invention. It would have been obvious to a skilled artisan to employ the compensator (C) as taught by Murayama into the projection lithography system of Klosner for compensating of the optical anomalies. It would have obvious to a skilled artisan to use two identical meniscus lens elements as suggested by Moskovich to constitute the corrective lens group having zero power of Murayama, for at least the purpose of reducing the cost of the lens system and whereby the cost of the projection lithography system is reduced.

9. Claims 10-11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Klosner et al (U.S.Pat. U.S. Pat. 6,416,908) in view of Murayama et al (U.S.Pat. 5,757,552) and further in view of Konoma et al (U.S.Pat. 4,015,897).

As to claims 10-11 and 20, Klosner discloses a projection lithography system but lacks to show a zero power meniscus lens pair means for supporting a curved mask. Murayama teaches a zero power meniscus lens pair means (C) and Konoma et al teaches an aperture stop (12) is supported by a pair of identical meniscus lenses (see figure 1). In view of such teachings it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the two meniscus elements of the Murayama for compensating of the optical anomalies of the projection lens system of Klosner and for supporting the mask in the system Klosner, as suggested by Konoma for at least the purpose of simplification of structure and reducing the size of the lithographic apparatus.

Allowable Subject Matter

10. Claims 3-9, 12 are allowed with the reasons set forth in the previous office action.

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11. Claims 2, and 21-23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record does not specifically teaches the curved mask to be placed on the curved surface and match the curvature of the meniscus lens, as recited in the instant claims.

12. Claims 13 and 19 are allowed since applicant's arguments with respect to these claims are found persuasive. For example, see page 30 and 31 of the remarks filed October 17, 2005.

Response to Amendment/Argument

13. Applicant's amendments filed October 17, 2005 have been entered. Claims 1-4, 6-13, 19-24 have been amended. Applicant's argument with respect to 112 rejection and prior art rejection have been carefully reviewed. The applicant is reminded that the claimed subject matter to examination will be given their broadest reasonable interpretation consistent with the specification, and limitations appearing in the specification are not be read into the claims. In re Yamamoto, 740 F. 2d 1569, 1571, 222 USPO 934, 936 (Fed.Cir. 1984). With this in mind, the discussion herein will focus on how the terms and relationships thereof in the claims are met by the references. Response to any limitation that is not in the claims or any argument that is irrelevant to or does not relate to any specific claimed language will not be warranted (emphasis added).

With respect to claim 24, in response to applicant's argument that "Murayama et al '552 does not show the elements recited in claim 24 as "...A zero-power pair of identical oppositely-

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oriented meniscus lens elements in close proximity...” and there is no recommendation of using the pair of meniscus lenses as a zero power lens group in a projection lithographic system” (see page 13 of remarks); the Examiner respectfully disagrees with the applicant since this is not quite true. As discussed in the prosecution history of this case, Murayama meets all of the limitations of the claim 24. The limitations on which the applicant relies on (i.e. A zero-power pair of identical oppositely-oriented meniscus lens elements in close proximity; or using the pair of meniscus lenses as a zero power lens group in a projection lithographic system” are not stated in claim 24. It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064.

Turning now to claim 1, firstly, in response to applicant’s argument that Murayama’s 552 does not have the complementarily positioned twin meniscus lens pair oriented concave-to-concave but rather has its twin-meniscus- pair oriented convex-to-convex”; the Examiner found this argument is not persuasive since that limitations are not stated in the claim 1.

7. Secondly, Applicant argue that “the logical odds of successfully combining multiple references diminish significantly as a function of the number of references to be combined and the different modes of operation of those references” but it has been held that the number of references does not have a bearing on the propriety of the rejection; theoretically such could be infinite. *Ex parte Fine*, 1927 C.D. 84 (1926). In response to applicant's argument that the examiner has combined an excessive number of references, reliance on a large number of references in a rejection does not, without more, weigh against the obviousness of the claimed invention. See *In re Gorman*, 933 F.2d 982, 18 USPQ2d 1885 (Fed. Cir. 1991).

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In response to Applicant's arguments that "finding a recommendation to combine elements from three references is unlikely", the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. In *re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosure taken as a whole would suggest to one of ordinary skill in the art. In *re McLaughlin*, 170 USPQ 209 (CCPA 1971). Furthermore, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the rejection here is made under 35 U.S.C. 103. Accordingly, there need not be a clear suggestion to "how to proceed in combining system parts" as argued. As noted in the prosecution history of this case, with respect to claim 1, given the projection lithography on curved substrates of Klosner, the corrective lens group having zero power of Murayama for correcting aberration and the field curvature of the optical system, and a lens system of Moskovich comprising two identical meniscus lenses, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the two identical meniscus lens elements having zero power of Murayama and modified by Moskovich into the lithographic apparatus of Klosner for at least the purpose of correcting the aberration of the projection optical system. For the above reasons, the Examiner fails to find applicant's

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arguments convincing that the claimed invention as recited in claim 1 would have been unobvious to a skilled artisan.

As to claim 2, applicant argues that the exact words of claim 2 in this area are: “...*two identical menisci group in close proximity,with means for closely holding a patterned mask against the outer of the beam exit meniscus*” (see page 41 of the remarks). Again, the limitations on which the applicant relies on (as argued) are not stated in claim 24. It is the claims that define the claimed invention, and it is claims, not specifications that are anticipated or unpatentable. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064. Claim 2 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, as well as the above- mentioned limitation.

Finally, with respect to amended claims 10, 11 and 20, applicant's arguments with respect to prior art have been carefully considered but have been traversed in view of new ground of rejection as set forth above.

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Prior Art Made of Record

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

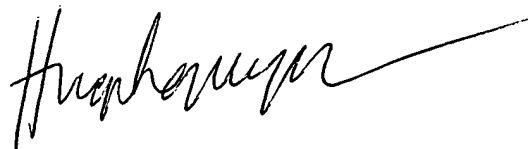
Norton (U.S.Pat. 5,917,594) is cited for its teachings of an optical system having a negative meniscus lens for correcting the spherical aberration and a positive lens for correcting achromatic aberration and wherein the two lenses combined have zero power (see abstract).

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Henry V. Nguyen whose telephone number is 571-272-2124. The examiner can normally be reached on Monday-Friday (First Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hung Henry V Nguyen
Primary Examiner
Art Unit 2851

hvn
1/20/06

Approved for
entry
1/2/06
ith

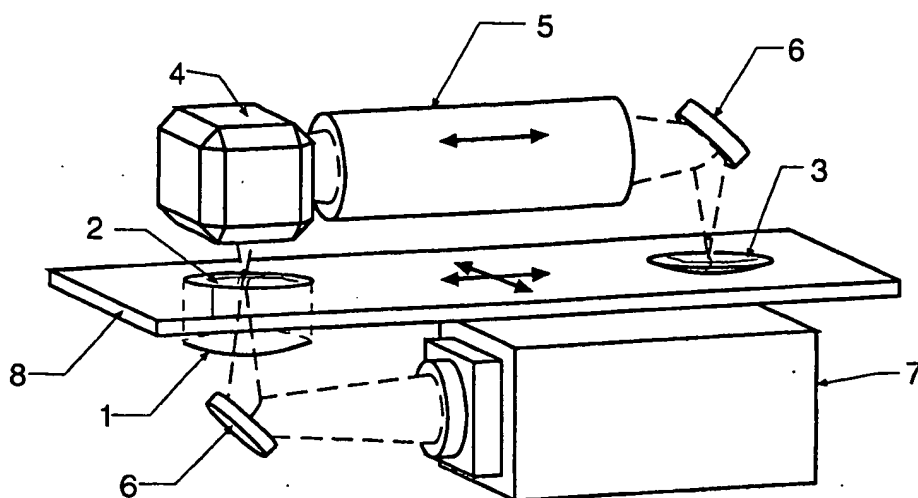


Fig. 1

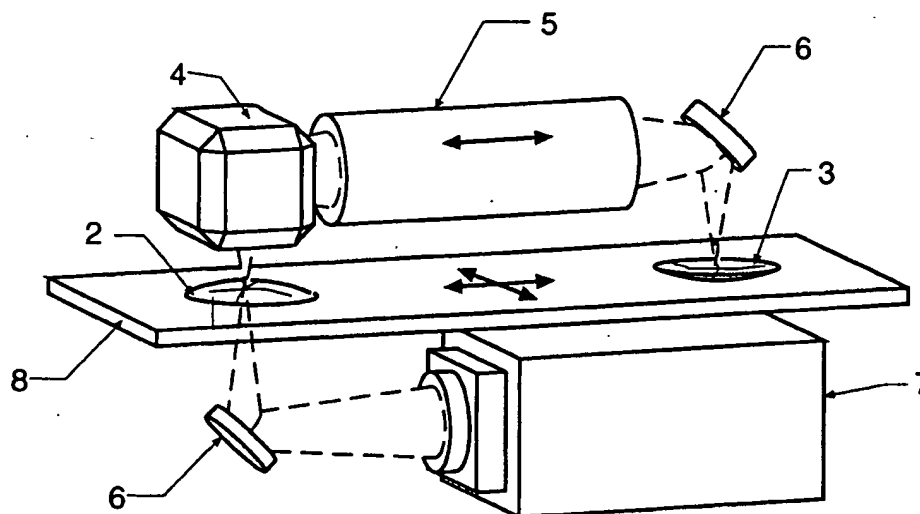


Fig. 2
PRIOR ART

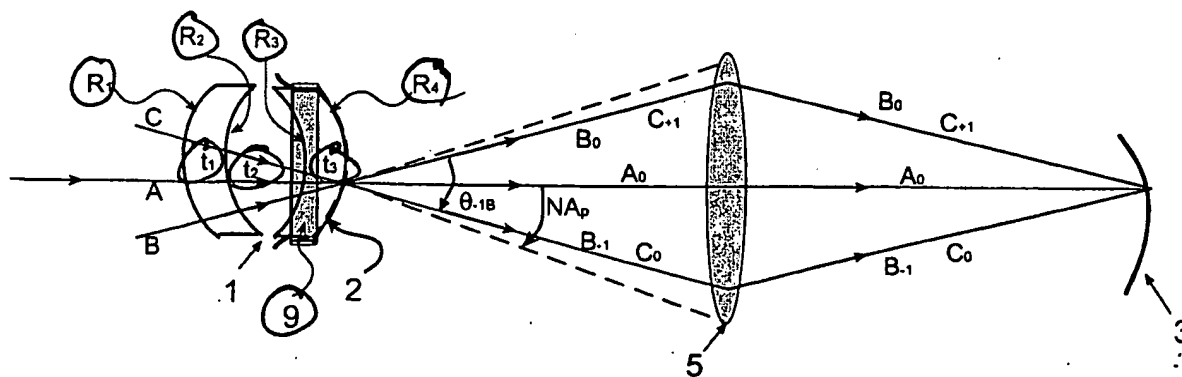


Fig. 9